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4. a) The graph is a vertical line; every point on the graph has an x -coordinate of -2 .
So, the equation is i: $x = -2$

- b) The graph is a horizontal line; every point on the graph has a y -coordinate of -2 .
So, the equation is iii: $y = -2$

5. a) The graph is a horizontal line that intersects the y -axis at 7.

- b) The graph is an oblique line.

- c) The graph is a vertical line that intersects the x -axis at -5 .

- d) Solve for x : $x + 9 = 0$

$$x + 9 - 9 = 0 - 9 \quad \text{Subtract 9 from each side.}$$

$$x = -9$$

The graph is a vertical line that intersects the x -axis at -9 .

- e) Solve for y : $2y = 5$

$$\frac{2y}{2} = \frac{5}{2}$$

Divide both sides by 2.

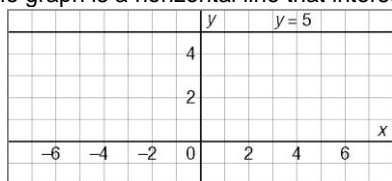
$$y = \frac{5}{2}, \text{ or } 2.5$$

The graph is a horizontal line that intersects the y -axis at 2.5.

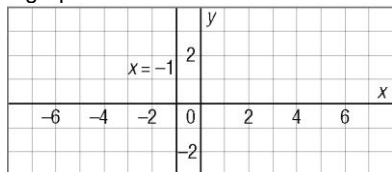
- f) The graph is an oblique line.

Apply

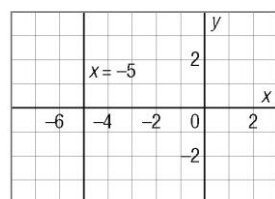
6. a) The graph is a horizontal line that intersects the y -axis at 5.



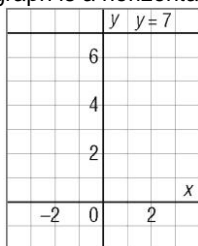
- b) The graph is a vertical line that intersects the x -axis at -1 .



- c) The graph is a vertical line that intersects the x -axis at -5 .



- d) The graph is a horizontal line that intersects the y -axis at 7.



7. a) All the points have y -coordinate 2; the equation is $y = 2$.
 b) All the points have x -coordinate 1; the equation is $x = 1$.
 c) All the points have x -coordinate -5 ; the equation is $x = -5$.

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8. The graph is that of $x = -\frac{1}{2}$. Solve each equation and compare the results to $x = -\frac{1}{2}$.

a) $x - 2 = 0$ Add 2 to each side.
 $x - 2 + 2 = 0 + 2$
 $x = 2$

b) $2x + 1 = 0$ Subtract 1 from each side.
 $2x + 1 - 1 = 0 - 1$
 $2x = -1$ Divide both sides by 2.
 $\frac{2x}{2} = -\frac{1}{2}$
 $x = -\frac{1}{2}$

- c) Since x does not appear in this equation, the equation cannot describe the graph.

d) $2x - 1 = 0$ Add 1 to each side.
 $2x - 1 + 1 = 0 + 1$
 $2x = 1$ Divide both sides by 2.
 $\frac{2x}{2} = \frac{1}{2}$
 $x = \frac{1}{2}$

Comparing results, we see that part b is a match for the graph: $2x + 1 = 0$.

12. The vertical line at the left side of the rectangle intersects the x -axis at -1 , so its equation is $x = -1$.
 The vertical line at the right side of the rectangle intersects the x -axis at 4 , so its equation is $x = 4$.
 The horizontal line at the top of the rectangle intersects the y -axis at 3 , so its equation is $y = 3$.
 The horizontal line at the bottom of the rectangle intersects the y -axis at -4 , so its equation is $y = -4$.

So, the rectangle is bordered by lines with equations: $x = -1$

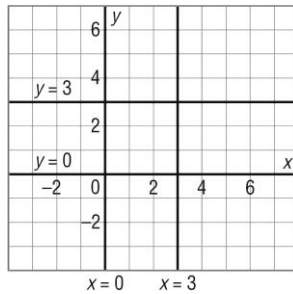
$$x = 4$$

$$y = 3$$

$$y = -4$$

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16. a)



b) The equations for the two vertical lines are $x = 0$ and $x = 3$.

The equations for the two horizontal lines are $y = 3$ and $y = 0$.

c) Here are 3 more squares that can be drawn with one vertex at $(0, 0)$, and horizontal and vertical sides.

For one square, the equations are $x = -3$, $x = 0$, $y = -3$, and $y = 0$.

For a second square, the equations are $x = -3$, $x = 0$, $y = 0$, and $y = 3$.

For a third square, the equations are $x = 0$, $x = 3$, $y = -3$, and $y = 0$.

